

REMARKS

Claims 1-64 are pending in the application. Claims 23-64 are withdrawn from consideration. Claims 1-22 are presented for consideration. Claims 1, 4, 7, 10, and 11 are currently Amended. No claim is currently cancelled.

Claims 1-22 stand rejected under 35 U.S.C. § 102(b) as being anticipated by EP 0630044 (Okumura et al., hereinafter referred to as Okumura).

Initially, Applicants were confused over the relevance of Okumura, since Okumura shows making a masking layer hydrophobic for repelling a solvent that reacts with exposed surfaces (i.e. not covered by the mask) to form an oxide layer on the exposed surfaces. By contrast, the present invention requires that the claimed liquid pattern material itself be solidified to form a layer. This, off course, is very different from Okumura's solvent, which reacts with the exposed surface to oxidized the exposed surface, but which itself is not solidified to form a layer. This is similar to the case where a piece of metal may be submerged in water, resulting in the surface of the metal reacting with the oxygen in the water to form a layer of oxide, i.e. rust. One would never confuse the layer of rust with a layer of solidified water, and thus it did not seem reasonable that the Office Action would be equating the oxide layer formed by use of Okumura's solvent to the presently claimed process of solidifying the liquid pattern material. Particularly since the process for solidifying the claimed liquid pattern material is explicitly recited in the claims, and does not involve the oxidizing of a surface exposed by a mask.

However, the Office Action also made reference to Okumura's use of Spin-On Glass, i.e. SOG, which might be thought of as a liquid. Thus, Applicants were not sure if the Office Action was equating Okumura's solvent or Okumura's use of SOG to the presently claimed liquid pattern material. Applicants attempted to contact Examiner Chacko-Davis for clarification, but the Examiner refused to discuss the case.

Thus, after much studying of the Office Action's wording, Application have concluded that the Office Action is likely equating Okumura's use of SOG to the claimed used of a liquid pattern material, and will respond accordingly.

Firstly, claims 1, 4, and 7 are amended to more fully define the liquid pattern material as an electrically conductive liquid pattern material. As it is

known in the art, glass is an insulator and thus cannot constitute an electrically conductive, liquid pattern material. Thus, this is directly opposed to Okumura's teachings.

Secondly, claims 10 and 11 are amended to more fully recite that the recited hydrophobic properties are for repelling the liquid pattern material. This is in direct conflict with Okumura, whose application of hydrophobic properties to a mask is for repelling a solvent from the mask, but which requires that the Spin-On Glass be applied directly on top of the mask, see Okumura's Fig. 4a where glass 44 is applied directly onto mask layer 43. Thus, this too is in direct conflict with Okumura's teachings.

Furthermore, Applicants respectfully point out that claims 2 and 19 teach that dried solutes (i.e. particles) in the liquid-pattern material are annealed. Okumura does not teach or suggest use of any solutes in his glass, nor does he suggest the annealing of any such solutes.

As it is explained in the specification of the present invention, the process of solidifying the presently claimed liquid-pattern material may involve an evaporation process for removing a solvent from the liquid-pattern material and thereby exposing the solute, followed by an annealing processing for annealing the solute into a contiguous conductive layer.

Applicants respectfully point out that claims 3, 5, 6, 8, 9, 13, 20, 21, and 22 recite this two-step process of evaporation and annealing. Okumura does not teach or suggest any such two-step process for solidifying a liquid layer.

Furthermore, Applicants respectfully point out that in claims 16 and 17 the annealing process is performed after removing the mask from the workpiece. Even if one were to equate the recited annealing process with any process for solidifying Okumura's glass layer, it is clear that Okumura's glass is solidified (Fig. 4A) prior to it being etched (Fig. 4B), and that only after the solidified glass has been etched does Okumura show removing this mask layer (Fig. 4C). This too is in direct conflict with claim 18, which requires that the process for removing the mask and the annealing process be performed simultaneously.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration of the present application.

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